attributes its error in part to the fact that it "has been even more successful than it budgeted in reducing expenses,"[75] we conclude that the effect of this success, if any, would have caused U S WEST's actual per-line BFP revenue requirement to be closer to its understated forecasts, thereby mitigating, not amplifying, other errors. While U S WEST repeatedly cites unprecedented growth in loop plant, cable and wire, and circuit investment over the past several years, it nevertheless developed its tariff year 1997/98 BFP revenue requirement forecast based on the unsupported assumption that "growth [will] return to historical levels."[76] Similarly, although U S WEST attributes part of its error since 1994 to its sales of certain exchanges, which have taken longer than expected to complete,[77] U S WEST gives no indication that it has used this information to adjust its tariff year 1997/98 forecast. Under such circumstances, and in light of U S WEST's history of repeatedly, significantly underestimating its BFP revenue requirement, we conclude that U S WEST's tariff year 1997/98 forecast is unreasonable.

52. U S WEST indicates in its direct case that, until 1993, it developed its BFP revenue requirement forecast by processing its budget forecasts through its Part 36 Model and Part 69 Model.[78] In 1994, U S WEST states that it changed its budget forecasting process to prepare budgets at a higher level of detail, necessitating certain changes in its BFP revenue requirement forecasting methodology. Instead of forecasting directly from the models, U S WEST instead used the Part 36 Model and the Part 69 Model to develop preliminary actual BFP revenue requirement data for the immediately preceding calendar year. It then applied a forecasted growth rate, developed using its new budget forecasting process, to the model data. U S WEST states in its Direct Case that "[t]he change in methodology in 1994 was driven by a change in business practices and was not intended as an attempt to change BFP forecasting methods. It is not apparent at this time that the 1994 change in BFP forecasting methodology altered 1997 tariff year projections in any way."[79] Our examination of U S WEST's per-line BFP revenue requirement forecasts shows no significant change in the performance of its per-line BFP revenue requirement forecasting methods, and we accept U S WEST's representations to this effect.

ii. Southwestern Bell

53. In its direct case, SBC offered explanations for the persistent underestimation

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[75] U S WEST Direct Case at 8.

[76] *Id.*

[77] *Id.*

[78] U S WEST Direct Case at 16.

[79] *Id.*

of the per-line BFP revenue requirements of Southwestern Bell. SBC states that Southwestern Bell performs a Cable and Wire Study and a Circuit Equipment Study to categorize facility investment between loop-related and trunk-related costs, and to identify private-line-related and special-access-related costs.[80] The percentage of costs these studies allocate to the loop has a significant impact on the interstate BFP revenue requirement.[81] These studies currently are updated on a monthly basis although, prior to August, 1993, Southwestern Bell updated the Cable and Wire Study only biannually.[82] SBC concedes that Southwestern Bell underestimated the loop-related costs these studies ultimately allocated to the BFP revenue requirement by between $22 million and $40 million for each tariff year between 1992/93 and 1996/97, inclusive.[83] This error alone accounted for between one-third (1996/97) and virtually all (1993/94 and 1994/95) of Southwestern Bell's BFP forecasting error in these tariff years. Nevertheless, Southwestern Bell's tariff year 1997/98 BFP revenue requirement forecast was developed using the same methodology that SBC admits has consistently understated the per-line BFP revenue requirement in the past.[84]

54. In preparing its BFP revenue requirement forecasts, a carrier may reasonably rely on Cable and Wire and Circuit Equipment studies that have forecast loop costs accurately in the past. SBC concedes, however, that it has generated forecasts using these studies that have consistently understated these items for the past five tariff years. Similarly, while we recognize that Southwestern Bell's BFP revenue requirement forecasts are based in part on budgeting decisions that have not been finalized for the second half of the tariff year at the time of filing, we find that it is not reasonable for SBC to continue to rely on consistently understated budget estimates that repeatedly generate low BFP revenue requirement forecasts. Therefore, we find that SBC's continued reliance on these studies in developing Southwestern Bell's forecasts is unjustified. Accordingly, we conclude that Southwestern Bell's BFP revenue requirement forecast for tariff year 1997/98. is unreasonable in that it is likely to show a downward bias in the same manner as its previous forecasts.

55. SBC's reliance on other sources of Southwestern Bell's errors for individual tariff years does not provide a basis for altering this conclusion. For instance, in tariff year 1991/92, Southwestern Bell's BFP revenue requirement forecast was low allegedly because of

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[80] SBC Direct Case at 5.

[81] *Id.*

[82] *Id.*

[83] *Id.* at 6-7.

[84] *Id.* at 23.

"larger investments associated with facility upgrades than projected."[85] For tariff year 1992/93, Southwestern Bell states that its forecast did not include actual costs of "right-to-use fees associated with the advancement of network interconnection requirements" and "corporate relocation costs."[86] For tariff year 1995/96, Southwestern Bell cites "an accumulation of items that resulted in operating expenses higher than amounts reflected in the forecast."[87] SBC does not assert that any of these costs were unforeseeable, and we are therefore skeptical that they could not have been included in the BFP revenue requirement forecast. Similarly, SBC and PacTel were beginning the merger process early in 1996, well before the BFP revenue requirement forecasts needed to be finalized.[88] The probable effects of a successful merger on Southwestern Bell's BFP revenue requirement could have been anticipated in the tariff year 1996/97 filing. Similarly, the probability of a flood should have been incorporated into Southwestern Bell's BFP revenue requirement forecasts throughout this period.[89] The effects of both of these events on the BFP revenue requirement, however, appear to have been relatively small.[90]

iii. GTE

56. GTE indicates that, because of changes to its budgeting process for tariff year 1997/98, it has changed from a budget-oriented, bottom-up forecast methodology to a "two-year trend," calculated by study area.[91] GTE concedes that its forecast is not consistent with the historical trend, because GTE recognized a decrease in its BFP revenue requirement of 5.3 percent overall between 1995 and 1996. GTE developed its 1997/98 forecast by projecting

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[85] *Id.* at 6.

[86] *Id.*

[87] *Id.* at 7.

[88] *See, e.g.,* News Release, "SBC Communications Inc. and Pacific Telesis Group Announce Merger Agreement; Creates Nation's Second Largest Telecommunications Company" (San Francisco, Apr. 1, 1996).

[89] SBC provides no information on the precise dollar impact of the 1993 midwestern flood. The flood, however, affected only a small portion of Southwestern Bells' service area and, based on information provided in the record, explains significantly less than half of Southwestern Bell's tariff year 1992/93 error. SBC Direct Case at 6. Accordingly, even if we were to make an adjustment for this flood, Southwestern Bell would nevertheless continue to fail our statistical tests. While the information in the record is insufficient for us to determine whether Southwestern Bell's forecasts incorporate the probabilities of floods or any other natural phenomena, we observe that Southwestern Bell's per-line BFP revenue requirement forecasts substantially understated the per-line BFP revenue requirement even in years without floods.

[90] *Id.* at 6, 8.

[91] GTE Direct Case at 13.

continued decline at that rate.

57. The *1997 Designation Order* required each price cap LEC to "calculate its actual interstate BFP revenue requirement for calendar years 1991-1996 and associated tariff years (beginning with the 1991-1992 tariff year)."[92] Each price cap LEC did so, with the exception of GTE. GTE reports in its direct case, without explanation, that information concerning its tariff year 1996/97 actual BFP revenue requirement is "not available."[93] Since filing its direct case, GTE has provided the Commission with no additional explanation or information concerning its tariff year 1996/97 per-line BFP revenue requirement, either in its rebuttal, or on an *ex parte* basis. Given GTE's disregard of the information requirements set forth in the *1997 Designation Order*, for purposes of this Order, we tested the performance of GTE's forecasting methods using only the five data points (tariff years 1991/92 through 1995/96) that GTE provided. Even after adjusting the critical *t* statistic for this smaller data sample, GTE's forecasts fall outside of the 90 percent confidence interval.

58. GTE offers sparse explanation of its consistently low BFP revenue requirement forecasts, stating only that "[d]uring the period of 1991-1996, GTE used forecasted budget data in the preparation of it projected interstate BFP revenue requirements. With the wide geographic area GTE serves and the changes in economic conditions and/or acts of nature, there were variances between the budget data and the actual interstate BFP revenue requirement results."[94] While we agree that diverse conditions in GTE's large number of study areas could make GTE's BFP revenue requirement, and its forecasts, more volatile, we cannot agree that such conditions explain the consistent and substantial understatement observed since 1991. While volatility could contribute to the large magnitude of GTE's forecasting errors, it does not explain the fact that GTE's forecasts are consistently low.

59. We have indicated in this and other proceedings our belief that it is difficult to forecast accurately the BFP revenue requirement based on only two years of data.[95] We find such a forecasting technique to be particularly suspect when used by a LEC to extrapolate a year-to-year change in the BFP revenue requirement that is relatively "large" compared to the magnitude of the changes experienced by that LEC in other years and by other LECs. Especially in light of the fact that none of the LECs under investigation here have recorded such a large decline two years in a row since 1991, and in light of GTE's history of repeated,

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[92] *1997 Designation Order* at ¶ 17.

[93] GTE Direct Case at Exhibit A-8, p. 2.

[94] GTE Direct Case at 5.

[95] 1997 Annual Access Tariff Filings, CC Docket No. 97-149, Memorandum Opinion and Order, DA 97-1350 (Com. Car. Bur., rel. June 27, 1997), at ¶ 21 (*1997 Suspension Order*); 1996 Annual Access Tariff Filings, Memorandum Opinion and Order, 11 FCC Rcd 7564, 7594 (Com. Car. Bur. 1996).

substantial understatement of its BFP revenue requirement, we find that GTE's per-line BFP revenue requirement forecast for tariff year 1997/98 is likely again to show a downward bias, despite its revisions to its forecasting methodology. In addition, as discussed below, our forecast of GTE's tariff year 1997/98 monthly per-line BFP revenue requirement differs substantially from GTE's forecast.

iv. Bell Atlantic - North (NYNEX)

60. Our analysis of the data indicates that NYNEX's per-line BFP revenue requirement forecasts have understated its actual per-line BFP revenue requirement in a statistically significant manner since 1991. In explaining this error, Bell Atlantic asserts that in tariff years 1992/93, 1993/94, 1994/95, and 1995/96 NYNEX underestimated "expenses and other taxes."[96] Bell Atlantic explains that "[a] major contributing factor to the under[estimates] was significant increases in actual operating expenses due to force reduction and service improvement initiatives."[97] According to Bell Atlantic, NYNEX's work force plans were either not available, or preliminary, in February of each of these years, when NYNEX developed its BFP revenue requirement forecasts, causing "more potential variability around meeting the actual expense target in the projected tariff period."[98]

61. We agree that the preliminary nature of NYNEX's plans in February could make forecasting the BFP revenue requirement more difficult. We conclude, however, that, while the preliminary nature of NYNEX's plans could increase the standard error of NYNEX's forecasts by increasing the uncertainty of its forecasts, this fact cannot explain the repeated, statistically significant understatement of NYNEX's per-line BFP revenue requirement we observe here. Instead, we conclude that NYNEX's consistent understatement of its per-line BFP revenue requirement over this period indicates the use of biased forecasting techniques.

62. For example, in tariff year 1993/94, Bell Atlantic states that NYNEX forecasted its BFP revenue requirement using a two-year growth rate that failed to capture a special pension enhancement booked in the second quarter of 1994, and that caused "an under[estimate] in expenses and other taxes."[99] For tariff year 1994/95, Bell Atlantic states that $83 million of NYNEX's $99 million error occurred because this special pension enhancement offer (already underway in the second quarter of 1994) *continued into tariff year*

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[96] Bell Atlantic Direct Case, Detailed Responses at 7-8.

[97] *Id.* at 10.

[98] *Id.*

[99] *Id.* at 8.

1994/95, which "increased expenses."[100] Bell Atlantic offers no explanation for NYNEX's inability to account for expenses attributable to a pension enhancement offer that had already been implemented.

63. On behalf of NYNEX, Bell Atlantic also cites, for tariff year 1991/92, adjustments to its revenue requirement forecast for the anticipated effects of exogenous adjustments, such as the completion of inside wire amortizations in Massachusetts and Rhode Island.[101] This explanation fails to persuade us either that NYNEX's BFP revenue requirement forecasting techniques are reasonable, or that they do not exhibit a downward bias. In developing its BFP revenue requirement, NYNEX could have chosen to account for this factor and probably could have developed highly accurate estimates of the actual impact.

64. NYNEX's tariff year 1996/97 per-line BFP revenue requirement forecast came closer than any other forecast during this period to its actual per-line BFP revenue requirement, overstating the actual figure by a small amount. In explanation, however, Bell Atlantic indicates that, for 1996/97, NYNEX developed its forecast based on a small change in its rate base from 1994 to 1995. Bell Atlantic explains that "this resulted in a small forecasted decrease in rate base which did not fully reflect the much larger change in rate base that occurred from 1995 to 1996."[102] Bell Atlantic does not indicate the reasons for this decline, that it expects NYNEX's rate base to continue to decline, or that the decline was attributable to factors that it could not have incorporated into its BFP revenue requirement forecasts.

65. In its direct case, Bell Atlantic indicates that, for tariff year 1991/92, NYNEX forecasted its BFP revenue requirement by applying a normalized 1990/1991 growth rate to its 1991 budget to forecast the 1992 budget. It then added forecasted budget data from the second half of 1991 and the first half of 1992 to generate a test period budget, which it then processed according to the Part 36 and 69 rules. Since tariff year 1992/93, NYNEX has used a methodology similar to Bell Atlantic-South's, that forecasts the BFP revenue requirement by extrapolating the growth experienced in the past two years.[103]

66. Bell Atlantic does not indicate that NYNEX changed forecasting methodologies in order to increase the accuracy of its forecasts, or to correct for any inherent bias, and our examination of its per-line BFP revenue requirement data reveals no observable improvement

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[100] *Id.*

[101] Bell Atlantic Direct Case, Detailed Responses at 7.

[102] *Id.* at 8.

[103] Bell Atlantic Direct Case, Detailed Responses at 19.

in NYNEX forecasts after 1991. Instead, because NYNEX's past forecasts show a statistically significant bias toward understatement of the per-line BFP revenue requirement, we find that NYNEX's per-line BFP revenue requirement forecast for tariff year 1997/98 is likely again to show a downward bias. Therefore, we prescribe a per-line BFP revenue requirement forecast for NYNEX that is reasonable in light of the past performance of its per-line BFP revenue requirement since 1991.

v. Bell Atlantic - South (Bell Atlantic)

67. Our analysis indicates that Bell Atlantic has understated its per-line BFP revenue requirement forecast in a statistically significant manner. Based upon the actual and projected monthly per-line BFP revenue requirements filed in its direct case, Bell Atlantic appeared to have an accurate and unbiased forecasting method. In its opposition, however, AT&T charged that Bell Atlantic had been incorrectly calculating its Total Other Taxes figure.[104] Correcting this Total Other Taxes calculation, AT&T asserts that Bell Atlantic's actual BFP revenue requirement should be approximately $11 million to $33 million higher for each tariff year.[105]

68. In rebuttal, Bell Atlantic provides corrected BFP revenue requirement data, which significantly increase the disparity between its forecasted and actual per-line BFP revenue requirements.[106] While Bell Atlantic asserts that its forecasts remain reasonable after calculating Total Other Taxes correctly, our test of the difference between its mean actual and mean forecasted per-line BFP revenue requirement shows a significant downward bias in the forecasts.

69. We conclude that Bell Atlantic's forecasts show a downward bias because Bell Atlantic has developed its forecasts since 1991 using substantially understated estimates of Total Other Taxes. Because it has corrected for this error, and because Bell Atlantic's past forecasts have generated reasonably unbiased forecasts, except for the effects of this error, we conclude that Bell Atlantic's forecasting methodology is likely to generate a reasonable projection of its actual per-line BFP revenue requirement for tariff year 1997/98. We therefore direct Bell Atlantic, in conjunction with its January 1, 1998, access tariff filing, to recompute its tariff year 1997/98 per-line BFP forecast, and issue any necessary refunds, using its existing methodology and the corrected BFP revenue requirement data contained in its rebuttal.

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[104] AT&T Opposition at Appendix B, p. 1.

[105] *Id.* at Appendix B, p. 3.

[106] Bell Atlantic Rebuttal at Appendix B.

vi. Sprint

70. In its direct case, Sprint offers no explanation for its consistent understatement of its per-line BFP revenue requirement since tariff year 1992/93.[107] Instead, Sprint states that it "does not have at its disposal the level of resources and time required [to] gather the detailed information necessary" to explain its BFP revenue requirement forecasting errors.[108] Instead, Sprint states that it considers the Commission's information requirement to be "unnecessarily stringent."[109]

71. Sprint alleges that, despite its consistent understatement of its per-line BFP revenue, it has allocated appropriate amounts of the BFP revenue requirement to the CCL charge, because it exceeded the $6.00 MLB monthly EUCL cap each year since 1991. While this cap has limited Sprint's ability to inflate improperly its common line revenues over this period, the MLB EUCL cap does not serve to ensure that Sprint's forecasting methods are unbiased. In addition, while Sprint's per-line BFP revenue requirement exceeds the former $6.00 cap, it does not exceed the current $9.00 cap. Therefore, as with the other price cap LECs, any bias present in Sprint's per-line BFP revenue requirement forecasting techniques is now of increased importance.

72. Sprint indicates that, through tariff year 1995/96, it used a bottom-up forecasting methodology identical to that used before it elected price cap regulation. Specifically, it states that it subjected test year budget data to its "Part 36 and 69 systems" to produce a budgeted BFP revenue requirement.[110] After 1995, Sprint changed its budgeting process, so that it no longer generated monthly budget data used for this process. For tariff years 1996/97 and 1997/98, Sprint states that it has used a two-year trend-based forecasting methodology.[111] Sprint states, however, that "since the process was performed at the individual Sprint level, some companies chose to trend pervious years' actual data, while others chose to trend previous years' filing data."[112]

73. Sprint does not indicate that it changed forecasting methodologies in order to increase the accuracy of its forecasts, or to eliminate any downward bias, and our examination

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[107] Only in tariff year 1991/92 did Sprint's forecast exceed its actual per-line BFP revenue requirement.

[108] Sprint Direct Case at Exhibit 3.

[109] *Id.*

[110] Sprint Direct Case at Exhibit 7.

[111] *Id.*

[112] *Id.*

of its per-line BFP revenue requirement data reveals no observable improvement in Sprint's tariff year 1996/97 forecast. Because Sprint's past forecasts, including its tariff year 1996/97 forecast, show a statistically significant bias toward understatement of the per-line BFP revenue requirement, we find that Sprint's per-line BFP revenue requirement forecast for tariff year 1997/98 is likely again to show a downward bias, despite its revisions to its forecasting methodology. Accordingly, we reject Sprint's per-line BFP revenue requirement forecast for tariff year 1997/98, and prescribe a forecast that is reasonable, in light of the performance of Sprint's actual, per-line BFP revenue requirement since 1991.

e. Prescription of BFP Revenue Requirement Forecasts

(1) Use of Autoregressive Analysis to Develop Prescriptions

74. In the past, the Commission has not prescribed any particular methodology for the LECs to use in developing their per-line BFP revenue requirement forecasts because it has recognized that the LECs might reasonably employ a variety of methods to develop these forecasts. Indeed, in this proceeding the LECs were given ample opportunity to provide information to justify their forecasting methodologies. The Communications Act requires that the LECs' charges, including those based on the BFP revenue requirement and end-user demand forecasts, be "just and reasonable."[113]

75. The Communications Act empowers us, in such a case, "to determine and prescribe what will be the just and reasonable charge, or the maximum or minimum, or maximum and minimum, charge or charges" these LECs are permitted to impose.[114] We therefore prescribe, below, the per-line BFP revenue requirement to be used by these five LECs in calculating their EUCL charges, CCL charges, and PICCs for the 1997/98 tariff year. The use of these prescribed per-line BFP revenue requirements will produce just and reasonable charges.

76. In light of our analysis above, we conclude that the use of a prescriptive remedy with respect to the per-line BFP revenue requirement calculations of these five LECs is necessary and appropriate in this case, even though the Commission has not, in the past, prescribed in advance any particular methodology for use by the LECs' in preparing their BFP revenue requirement forecasts.[115] We continue to believe that there are many different methods that could produce reasonable forecasts for individual LECs, and that it would be

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[113] 47 U.S.C. § 201(b).

[114] 47 U.S.C. § 205(a).

[115] 1997 Annual Access Tariff Filings, CC Docket No. 97-149, Memorandum Opinion and Order, DA 97-1350 (Com. Car. Bur., rel. June 27, 1997), at ¶ 21.

counterproductive for us to prescribe the use of any particular methodology. In fact, the LECs whose forecasts we accept in this proceeding have used a wide variety of forecasting techniques, as was permitted by the *1997 TRP*.[116]

77. We conclude, however, that we must prescribe forecasts of the per-line BFP revenue requirement for the tariff year 1997/98 for the LECs that have consistently made significant underestimates of their per-line BFP revenue requirement in previous tariff periods and have given us no satisfactory explanation why their estimates for the 1997/98 tariff year do not also underestimate their per-line BFP revenue requirement. For four of the LECs that fall into this category, we apply an autoregressive method to develop the forecasts upon which we base our prescription for the tariff year 1997/98. Because GTE failed to supply adequate data to apply this autoregressive method, we combine simple arithmetic and geometric averages of its past per-line BFP revenue requirements to develop a forecast for the tariff year 1997/98. Although Bell Atlantic's past forecasts have consistently underestimated its BFP revenue requirement, the source of its past underestimates has been identified and we order Bell Atlantic to calculate and file a forecast for the tariff year 1997/98 based on a corrected version of its forecasting methodology. These prescribed forecasts will serve as the basis for calculating refund liability for the period July 1, 1997 through December 31, 1997. LECs are permitted to adjust these prescribed forecasts for the period January 1, 1998 through June 30, 1998 to allow for any January 1, 1998 reductions in the number of EUCL charges actually levied on customers with ISDN lines. Finally, we agree with parties contending that, in addition to the impact an inappropriately low forecast of per-line BFP revenue requirement has on permitted common line revenues in any given tariff year, a consistent, significant underestimation of the per-line BFP revenue requirement increases common line revenues for all future years above what our price cap rules would otherwise permit. These parties have failed to provide, however, a reasonable quantification of this secondary effect and we decline to prescribe a reduction in LEC PCIs in this Order.

78. We conclude that we should use autoregressive forecasting. Autoregressive forecasting is used commonly to forecast future values of a variable, when the value of that variable depends, not on time, but on past values of the same variable. When applied to data that exhibit such a correlation over time, autoregressive analysis will forecast the next value in the series based on that correlation. Conversely, when applied to data that show only random fluctuations, the results of an autoregressive analysis closely approximate the arithmetic mean of the data. For data that exhibit random fluctuations, we find that a forecast that approximates the arithmetic mean is the most reasonable forecast available for the next member of the series. Accordingly, we conclude that autoregression provides a forecasting tool that accounts for intertemporal correction present in the data and, in cases where random fluctuations are present, provides an unbiased estimate of the central tendency of the per-line

[116] Material to be Filed in Support of 1997 Annual Access Tariff Filings, Tariff Review Plans, DA 97-593 (rel. Mar. 21, 1997), ¶ 8.

BFP revenue requirement series.

79. The forecasting methods we use in developing our prescriptions produce reasonable per-line BFP revenue requirement forecasts for these LECs, consistent with Section 201(b) of the Communications Act[117] and, therefore, reasonable charges as well. Therefore, we require U S WEST, Southwestern Bell, NYNEX, Sprint, and GTE to adjust their per-line BFP revenue requirement forecasts in accordance with the prescriptions below, so that just and reasonable charges can be put in place.

80. ***Southwestern Bell, U S WEST, NYNEX, and Sprint.*** In prescribing the per-line BFP revenue requirement for use by U S WEST, Southwestern Bell, NYNEX, and Sprint, we seek to employ the forecasting method that is most likely to produce reasonable results for tariff year 1997/98. To this end, we rely primarily on a simple autoregressive forecasting technique, where each year's per-line BFP revenue requirement is a function of the previous year's value.

81. Providing a reasonable forecast based on six points of data is, at best, a difficult task that is made more difficult by our lack of access to data regarding future LEC business and construction plans. Examination of LECs' per-line BFP revenue requirements shows that some LECs' revenue requirements exhibit a positive correlation between successive values, while others appear to fluctuate randomly over time. For those LECs whose per-line BFP revenue requirement has followed an upward trend, we intend to prescribe a per-line BFP revenue requirement that approximates the upward movement over time. To the extent that a LEC's per-line BFP revenue requirements appear to fluctuate randomly, we conclude that a prescription based on some measure of per-line BFP revenue requirement's central tendency is likely to result in unbiased forecast. As discussed more fully below, we rely primarily on a simple autoregressive forecasting technique, where each year's per-line BFP revenue requirement is a function of the previous year's value. In addition, we include forecasts based on a variety of other techniques to check the validity of our prescription.

82. In our forecasting, we rely on the adjusted, "series 2" actual calendar-year BFP revenue requirement data submitted by the price cap LECs, further adjusted for certain additional one-time expenses detailed in the statistical appendix (such as depreciation revisions for U S WEST), and calendar year line counts, to compute adjusted actual per-line BFP revenue requirement data on a calendar year basis. To prescribe per-line BFP revenue requirement forecasts for tariff year 1997/98 for U S WEST, Southwestern Bell, NYNEX, and Sprint, we subject these data to autoregressive analysis.

83. Our forecasts based on the autoregressive method are shown in the table below. The LEC forecasts are shown at the bottom of the table. To support the reasonableness of our

[117] 47 U.S.C. § 201(b).

forecasts, we include in the table an estimate of the per-line BFP revenue requirement for tariff year 1997/98 based on a simple linear extrapolation of any trend in each LEC's past actual per-line BFP revenue requirement, and the arithmetic mean of the same data. As discussed above, a forecast based on an autoregressive model should approximate a linear extrapolation of any trend that exists, and in the absence of a trend should approximate the arithmetic mean. The simple linear trend regressions show that adjusted per-line BFP revenue requirements for Southwestern Bell and U S WEST exhibited statistically significant trends.[118] For these LECs the forecast produced by the autoregressive technique are lower than those produced using a simple linear trend, but are well above the arithmetic mean. In contrast, the autoregressive model produced forecasts for NYNEX and Sprint that are nearly equal to the arithmetic mean. Visual inspection of the actual per-line BFP revenue requirements of these LECs, as adjusted for changes in our rules, reveals no real pattern or trend.[119] We conclude that the autoregressive method, using available data, provides reasonable forecasts of per-line BFP revenue requirement for the tariff year 1997/98 for U S WEST, Southwestern Bell, NYNEX, and Sprint.

	Nynex	GTE*	Sprint	Southwestern	US West
FCC Autoregression (prescription)	$6.48	na	$6.56	$6.53	$7.38
FCC Trend Forecast	$6.72	na	$6.58	$6.72	$7.24
FCC Calendar Year Arithmetic	$6.39	na	$6.55	$5.96	$6.10
LEC Forecast	$5.92	$6.21	$6.41	$5.75	$6.56

84. Accordingly, we direct US WEST, Southwestern Bell, NYNEX, and Sprint to recalculate their EUCL charges, CCL charges, and PICCs for tariff year 1997/98, using the forecasts shown on the first line of the table above. For LECs subject to our prescription that tariff EUCL charges on a study-area basis, we direct them to recalculate their EUCL charges, CCL charges, and PICCs, by increasing each study area's forecasted per-line BFP revenue requirement by the ratio of our company-wide prescription, shown above, to the LEC's filed 1997/98 forecast, shown on the last line of the table above. These LECs must then issue a refund, including interest, to each IXC operating in its region, computed by multiplying the difference in the CCL rate by the number of minutes each IXC originated from or terminated to that LEC between July 1 and December 31, 1997. Refunds shall be computed on the basis

[118] For additional discussion, see the statistical appendix.

[119] Graphical representations of all of these companies' data are included in the statistical appendix.

of daily compounded interest using interest rates specified by the United States Internal Revenue Service.

85. ***Prescription for GTE.*** The *1997 Designation Order* required each price cap LEC to demonstrate that its projection of tariff year 1997/98 end-user demand was reasonable by providing trend analyses using actual numbers of lines and the natural logarithm of the number of lines, as reported in ARMIS, if available. That order required the LECs to develop these trends using calendar year line-count data from 1991-1996.[120] All of the price cap LECs provided us with calendar year end-user demand data, except GTE. Without explanation, GTE disregarded this requirement of the *1997 Designation Order* and failed in its direct case to provide the required calendar year line counts.

86. The autoregressive forecasting technique that we used to develop per-line BFP revenue requirement prescriptions for U S WEST, Southwestern Bell, NYNEX, and Sprint relies on the use of calendar year per-line BFP revenue requirement data that have been adjusted for the effects of Commission rule changes on the BFP revenue requirement since 1991. Because GTE did not file calendar year line count data in its direct case, we have been unable to compute such calendar year per-line BFP revenue requirement data for GTE.[121] As discussed, GTE's per-line BFP revenue requirement forecasts have evidenced a downward bias, and we have therefore rejected GTE's tariff year 1997/98 forecast. Accordingly, we must select an alternative method of prescribing a forecast for GTE. In doing so, we will use a method that represents the most reasonable forecast available based on this record.

87. As discussed more fully in the statistical appendix, because GTE has prevented us from determining its adjusted, calendar-year per-line BFP revenue requirements, we rely instead on the three tariff-year per-line BFP revenue requirement values contained in the record for which the Commission's rules remained constant. During these three tariff years, GTE's actual per-line BFP revenue requirement decreased slightly.[122] With only three data points, however, we are unable to determine whether the slight decrease over this period represents a slight downward trend that may continue, or whether the series is relatively

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[120] *1997 Designation Order* at ¶ 33.

[121] In response to a staff request, GTE filed, *ex parte*, calendar-year line count data. *See* Letter from F.G. Maxson, Director - Regulatory Affairs, to William F. Caton, Acting Secretary, Federal Communications Commission, (filed Nov. 21, 1997). We reject these calendar-year data, however, as unreliable. As discussed more fully in the statistical appendix, in many cases, the line count for a particular tariff year (*e.g.*, 1994/95), filed in GTE's direct case, is greater than the line counts filed *ex parte* for both surrounding calendar years (*e.g.*, 1994 and 1995). We consider this result to be highly unlikely, especially when repeated several times in the series.

[122] The actual per-line BFP revenue requirements for tariff years 1993/94, 1994/95 and 1995/96 are $7.57, $7.44, and $7.18, respectively.

stable, showing no trend, with the slight downward slope occurring by chance. If this downward slope continued as a trend, a prescription based on the geometric average growth rate would represent a reasonable estimate of the tariff year 1997/98 value. If, on the other hand, the series shows no trend, the arithmetic mean would represent a reasonable estimate of the value of the next member of the series.

88. We have computed projections based on both the geometric average growth rate and the arithmetic mean of this series and adjusted for changes to the Commission's treatment of payphone and OB&C expenses. Because we cannot determine from only three data points whether GTE's per-line BFP revenue requirements show a trend, however, we cannot conclusively reject either forecast. In this case, therefore, we conclude that a reasonable estimate of GTE's per-line BFP revenue requirement for tariff year 1997/98 is the average of these two forecasts. We have computed this average and we direct GTE to use the resulting $7.26 per-line BFP revenue requirement forecast for tariff year 1997/98.

89. We direct GTE to recalculate its EUCL charges, CCL charges, and PICCs for tariff year 1997/98, using this Commission-prescribed forecast. To do so, we direct GTE to recalculate its EUCL charges, CCL charges, and PICCs, by increasing each study area's forecasted per-line BFP revenue requirement by the ratio of its company-wide prescription to its filed 1997/98 forecast. GTE must then issue a refund, including interest, to each IXC operating in its region, computed by multiplying the difference in the CCL rate by the number of minutes each IXC originated from or terminated to that LEC between July 1 and December 31, 1997. Refunds shall be computed on the basis of daily compounded interest using interest rates specified by the United States Internal Revenue Service.

90. ***ISDN Lines.*** The *Access Charge Reform Order* revised the Commission's treatment of integrated services digital network (ISDN) lines, reducing the number of EUCL charges assessed on these derived channel services.[123] Specifically, the *Access Charge Reform Order* reduced the number of EUCL charges assessed on primary rate interface (PRI) ISDN lines from twenty-four to five, and reduced the number of EUCL charges assessed on basic rate interface (BRI) ISDN lines from two to one.[124] With these changes taking effect on January 1, 1998, we have not adjusted our prescriptive per-line BFP revenue requirement forecasts to account for this change. Such an adjustment, if made to rates applied in the period July 1, 1997 through December 31, 1997, would overstate the proper per-line BFP revenue requirement, and is not required to compute these LECs' refund liability for that period.

91. For the period January 1, 1998, through June 30, 1998, our review of the

[123] *Access Charge Reform Order* at ¶¶ 111-22.

[124] 47 C.F.R. § 69.152(l).

record indicates that the impact on the per-line BFP revenue requirement of this change to the treatment of ISDN lines will be relatively small. Bell Atlantic, for example, indicates that this change affects NYNEX's per-line BFP revenue requirement by approximately two cents.[125] This two-cent adjustment appears to be one of the greatest impacts reflected in the record. U S WEST, for example, indicates that this change to the treatment of ISDN lines requires an adjustment of only 4500 lines, out of millions in its region.[126] Nevertheless, if the carriers for which we prescribe per-line BFP revenue requirement levels in this proceeding have not already adjusted their end-user demand forecasts to account for the effects of the changes to the treatment of ISDN lines to reflect a tariff-year average demand level, and if adjustments to end-user demand levels are needed,[127] we permit these LECs to make an adjustment to our prescriptions to reflect, on a going-forward basis, effective January 1, 1998, the revised treatment of ISDN lines.

(2) Rejection of Other Proposals

92. Some of the LECs challenge the assumption that the BFP revenue requirement and EUCL demand are variables that can be forecast more accurately once historical data are modified to eliminate the impacts of past rule changes and other variables. We disagree. As discussed in the statistical appendix, for some LECs, the adjusted series 2 BFP revenue requirement data show a strong trend. In any case, the autoregressive analysis we use in this order does not depend on the presence of a trend in the data to provide reasonable results. Nevertheless, autoregression permits us to account for, and take advantage of, any trend present in the data in developing our prescriptions.

93. The price cap LECs have indicated that they have used in the past some form of either trend forecasting, or "bottom-up" forecasting.[128] In developing our prescriptive BFP revenue requirement forecasts for tariff year 1997/98, we decide not to rely on a "bottom-up" approach. The record before us contains insufficient data to permit us to develop and test such a forecasting method, because a "bottom-up" forecasting method relies on individual LEC budget forecasts, details of company business plans, service models, and other highly specific data that the Commission is ill-equipped to assess. Moreover, even if we were to require the LECs to submit sufficient data, such an approach still depends upon the reliability of the LECs' budgeting and other forecasts on an individual-component basis. Southwestern Bell and U S WEST used a bottom-up forecasting method to develop their estimates, and

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[125] Bell Atlantic Direct Case, Detailed Responses at 27.

[126] U S WEST Direct Case at 22.

[127] Bell Atlantic indicates that Bell Atlantic - South has never reported PRI ISDN lines on a voice-grade equivalency basis and, therefore, requires no change to its end user demand forecast. *Id.*

[128] For a further discussion of these forecasting techniques, *see 1997 Designation Order* at ¶¶ 28-29.

both have cited errors stemming from the fact that their financial information for the upcoming year is not well-enough developed to permit unbiased forecasting when the BFP revenue requirement forecasts are prepared for the upcoming year. While GTE this year has switched to a forecast based on the two-year BFP revenue requirement trend, it developed all of its prior BFP revenue requirement forecasts using a bottom-up forecasting methodology with poor results.

94. We conclude that the shortcomings of Southwestern Bell's, U S WEST's, and GTE's forecasts likely stem from these LECs' use of these poorly-developed budget data, and that we would be unlikely to develop more accurate forecasts using these data than did the LECs themselves. We are now several months into the current tariff year, and these LECs may now possess budget information that is more accurate and well-developed than that upon which they based their June forecasts. We will base our prescriptions, however, on the LECs' per-line BFP revenue requirement on information that was available to the LECs at the time they developed their June forecasts, and we will not to make use of any updated budget data that may exist.[129] To do otherwise would confer an advantage on the very LECs that we have found to have proposed forecasts that are consistently and inappropriately low. Furthermore, the limited time available to us to complete tariff investigations does not allow us to extend the process of gathering and adjusting data.

95. The Commission has concluded in the past with respect to trend-based forecasting that it is difficult to develop an accurate forecast based only on two years of data.[130] LECs using such a forecasting method, in general, extrapolate to the tariff year ahead the percentage change in the BFP revenue requirement experienced in the last two periods for which actual data are available. The record indicates that some LECs have produced relatively unbiased forecasts using this method, and we do not here prohibit its use.[131] Nevertheless, this method remains vulnerable to significant error if unexpected or one-time events were to cause a large change in the most recent year-to-year change in the BFP revenue requirement. In such a case, the LEC's extrapolation would be based on a growth rate not representative of that to be expected in the future. GTE's tariff year 1997/98 forecast, based on its extrapolation of a large drop in its BFP revenue requirement between 1995 to 1996, provides such an example, in that its resulting tariff year 1997/98 forecast departs substantially from historical growth rates. Because of our concerns with the reliability of this method, we decline to base our prescriptions in this order on a two-year trend-based forecast.

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[129] In any event, the record in this proceeding is now closed. Although *ex parte* presentations are permitted, *1997 Designation Order* at ¶ 82, no LEC has submitted any additional data that may exist.

[130] 1996 Annual Access Tariff Filings, Memorandum Opinion and Order, 11 FCC Rcd 7564, 7594 (Com. Car. Bur. 1996).

[131] *E.g.*, Aliant Direct Case at 5.

96. Several parties suggest that we modify our rules to permit the use of past-year actual BFP revenue requirement and end-user demand data in computing the per-line BFP revenue requirement.[132] These parties argue that such a method would remove the uncertainty and controversy associated with forecasting from the calculation of the per-line BFP revenue requirement, and would streamline the calculation process. The Price Cap Performance Review, Fourth Report and Order, recently considered this issue and rejected the use of historical data in developing EUCL and CCL rates, deciding instead to continue to rely on forecasted data.[133] We will consider this issue further, if at all, on reconsideration in that proceeding.

97. We also decline to adopt AT&T's proposal to require the LECs to forecast the BFP revenue requirement and end-user demand levels based on a trend-line of past calendar year data.[134] While such a method may produce reasonable results, we conclude, as discussed above, that there are many reasonable methods of forecasting the per-line BFP revenue requirement. We also decline to require the LECs to include an "error correction" adjustment to their forecasts to correct for the revenue effects of any error in the prior year.[135] While the price cap LECs' forecast of the BFP revenue requirement is still based on rate-of-return principles, this calculation is not used directly to determine permitted common line revenues. Instead, common line revenues permitted under price caps are adjusted each year for changes to the PCI. Adjustments to the BFP revenue requirement forecast to account for errors in the prior year, therefore, would not necessarily correct for any resulting impact on common line rates or revenues.

98. Finally, we decline to use the analyses submitted by AT&T and MCI in their oppositions. Both AT&T and MCI analyze the LECs' BFP revenue requirement forecasts, purporting to demonstrate that these forecasts have historically understated the total BFP revenue requirement. MCI and AT&T conclude, based on analyses using regression and average growth rates, that this historical pattern is likely to continue in tariff year 1997/98. We conclude that there are two problems with these analyses. First, as discussed above, it is the per-line BFP revenue requirement forecast, and not the BFP revenue requirement or end-

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[132] *E.g.*, Ameritech Direct Case at 4; Bell Atlantic Direct Case at 6; Sprint Direct Case at 4.

[133] *Price Cap Performance Review for Local Exchange Carriers*, CC Docket No. 94-1, Fourth Report and Order in CC Docket No. 94-1 and Second Report and Order in CC Docket No. 96-262, FCC 97-159 (rel. May 21, 1997) at ¶¶ 171-72.

[134] AT&T Opposition at 14.

[135] *Id.*

user demand forecasts individually, that affects the determination of EUCL and CCL charges.[136] Therefore, an analysis of the BFP revenue requirement, separately from an analysis of the LECs' line counts, is of limited value. Second, by using unadjusted data in their analyses, AT&T and MCI have failed to correct for Commission rule changes and other factors that affect the apparent historical growth rate.

(3) Adjustment to Base-Year Common line Revenues

99. In this section we consider some parties' arguments that we reduce LEC PCIs to remove the residual impact of inappropriately low forecasts on total permitted common line revenues in subsequent years. We conclude that, although there is likely to be some impact, the parties have provided no convincing quantification of the permanent upward effect of inappropriately low forecasts on permitted common line revenues, and we decline to order an reduction to LEC PCIs at this time.

100. The record in this proceeding is not sufficient to permit us to calculate the cumulative effects of this understatement on the current per-minute CCL. The maximum CCL charge is determined, in part, by aggregate base-period common line basket revenues.[137] Thus, any increase in aggregate common line revenues is carried forward into the following year, further increasing future CCL charges and aggregate common line revenues in the future.[138] As discussed above, a price cap LEC may increase its total common line basket revenue if it submits forecasts of per-line BFP revenue requirements that are biased downward, if the price-cap LEC's EUCL charge is below the EUCL cap, and if it experiences growth in average per-line minutes-of-use that is at least half of the growth experienced the previous year. When used by a price cap LEC that routinely develops unbiased per-line BFP revenue requirement forecasts, the price cap formula adjusts the CCL rate in a manner intended to generate the balance of the common line revenues permitted under price caps not recovered from EUCLs, including the revenue increases associated with growth in average per-line minutes-of-use under the "balanced 50-50" formula.

101. In its opposition, AT&T asserts that, by repeatedly understating their per-line BFP revenue requirements, the LECs have systematically inflated their CCL rates since

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[136] AT&T does not challenge the LECs' line count forecasts in its opposition. MCI concedes that the LECs' line count forecasts since 1991 have been "relatively accurate." MCI Opposition at 7.

[137] 47 C.F.R. §§ 61.45(c), 61.46(d).

[138] The effect discussed here differs from the situation where a LEC reports a per-line BFP revenue requirement that is biased downward. In such a case, increases in CCL charges are offset, in part, by decreases in EUCL rates. In this case, past gains from underestimating per-line BFP revenue requirements are the starting point for calculating CCL charges, and has no effect on EUCL charges.

1991.[139] We agree that a LEC that has consistently understated its per-line BFP revenue requirement over the course of several years has also consistently and correspondingly inflated its maximum CCL rate. Each year, the price cap LEC uses its prior year's total common line revenues as the starting point in computing its CCL rate. If the price cap LEC, by understating its per-line BFP revenue requirement, inflates its aggregate common line revenues in a given year, the price cap formula automatically builds this inflation into its CCL rate for the upcoming year. A price cap LEC that repeatedly understates its per-line BFP revenue requirement, therefore, compounds the increase to its aggregate common line revenues every year. As the effects of this overstatement compound each year, the maximum CCL charge becomes increasingly inflated, generating revenues that will exceed the common line revenues intended to be permitted under price caps.

102. U S WEST, Southwestern Bell, GTE, Sprint, NYNEX, and Bell Atlantic all have repeatedly understated their per-line BFP revenue requirement, in a statistically significant manner since the advent of price cap regulation, and the effects of this understatement are now incorporated into the CCL rates of these LECs. AT&T, in its opposition, submits certain calculations of the amount it believes that it has overpaid in CCL charges since 1991 because of the LECs' understatement of their BFP revenue requirements.[140] This calculation, however, does not accurately state the amount by which the LECs' current common line revenues permitted under price caps may be overstated because of any past downward bias in the LECs' per-line BFP revenue requirement forecasts. Contrary to AT&T's assertion, the CCL rate is recalculated each year, according to the formula contained in section 61.46(d)(1) of the Commission's rules.[141] Any analysis of the cumulative effects of these price cap LECs' understatement of their per-line BFP revenue requirements would need to proceed from this formula, taking into account both any CCL revenue increase, and any EUCL revenue foregone, that is attributable to a downward bias in the LECs' per-line BFP revenue requirement forecasts.

B. Equal Access Exogenous Cost Changes

1. Background

103. In the *1988 Equal Access Cost Reconsideration Order*, the Commission ordered equal access expenses to be capitalized and recovered (amortized) over eight years, instead of

[139] AT&T Opposition at 15 n.24.

[140] AT&T Opposition at Appendix E.

[141] 47 C.F.R. § 61.46(d)(1).

being recovered as an operating expense in the year the expense was incurred.[142] This amortization permitted the recovery of the capitalized expense, including an allowance for the cost of capital, in eight equal installments. Under the rate-of-return (ROR) regulatory regime applicable to all LECs in 1988, LECs were allowed to increase their annual permitted regulated revenues by the amount of the annual amortization. Under that rate-of-return regulatory framework, after LECs had been permitted the opportunity to earn this annual fixed amount for eight years (ending on December 31, 1993), allowable annual regulated revenues would have been reduced by the annual amortization amount. When price cap regulation was initiated on January 1, 1991, the annual amortization expense for equal access was incorporated into the total revenues permitted for the traffic sensitive basket. Thus, the revenues LECs were allowed to receive, and the prices they were allowed to charge at the inception of price caps, were higher than they otherwise would have been by the amount of the annual amortization expense for equal access. In the *Access Reform First Report and Order*, the Commission found that the annual revenue effect of the equal access amortization should be removed from LEC rates because the amortization period had long since expired.[143] The Commission therefore required price cap LECs to make a downward exogenous adjustment to the traffic sensitive basket to account for the completion of the amortization of equal access costs.[144] The Commission stated that such an adjustment would ensure that ratepayers are not paying charges based upon costs that have already been fully recovered.[145]

104. In their 1997 annual access tariff filings, the majority of price cap LECs determined the exogenous adjustment by first identifying the dollar amount of the equal access amortization that was included in setting the initial price cap index in 1991. They then reduced this amount by the percentage by which the price cap index (PCI) for the traffic sensitive basket had been reduced from the initiation of price cap regulation to June 30, 1997, *i.e*, an average of 20%. If they had adjusted for both the decline in the PCI and the increase in demand, their downward exogenous adjustment would have been significantly greater, rather than 20% lower, than the original upward exogenous adjustment. Thus, the LECs have

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[142] *Equal Access Reconsideration Order* at 437 ¶ 25. Equal access expenses are the costs that the LECs incurred in order to provide equal access, *i.e.*, one plus dialing for presubscribed customers of interstate interexchange carriers, as required by the Modification of Final Judgment and the Commission. *See Access Reform First Report and Order*, at n. 409.

[143] *See Access Reform First Report and Order*, at ¶ 311.

[144] *Access Reform First Report and Order* at ¶ 314. The exogenous adjustments are adjustments to the price cap indices that LECs are required to make for changes to costs in providing access services that are beyond the control of the company and that are not reflected in the annual inflation adjustment. *See* 47 C.F.R. § 61.45.

[145] *Access Reform First Report and Order* at ¶ 302.

made only two-thirds of the downward adjustment needed to remove fully from current rates the impact of the original upward adjustment. The benefit the LECs will receive from the third not removed will continue to grow every year as demand growth exceeds the decline in the price cap indices. Aliant, in contrast, determined the amount of equal access costs to be removed by determining the initial amortization and then increased that amount to account for the change in total revenue for the traffic sensitive basket between the initiation of price caps and the present.

105. In the *1997 Suspension Order*, the Bureau set for investigation the question whether LECs had completely removed these equal access expenses from their rates, as required by the *Access Reform First Report and Order*.[146] The Bureau questioned whether most LECs had removed completely equal access exogenous cost expenses because, after they calculated these expenses, they had reduced this amount by the amount of the PCI change in the traffic sensitive basket between the initiation of price cap regulation and June 30, 1997. The Bureau suggested that LECs may need to adjust the PCI by the percentage change in base period revenue ("R") from the date each LEC made its first annual access price cap filing through June 30, 1997.[147] In addition, the Bureau tentatively concluded that the documentation of the unadjusted equal access expense provided by Ameritech and SNET indicated that they may have improperly implemented the requirements of the *Access Reform First Report and Order*. The Bureau also stated that it was not persuaded that Aliant's exogenous cost adjustment, which appears to have included the "R" adjustment, was correctly calculated or fully supported.

106. In the *1997 Designation Order*, the Bureau tentatively concluded that LECs should make a revenue adjustment to the amortized equal access expenses, as opposed to the LECs' proposed PCI adjustment, in order to remove amortized equal access expenses completely from current rates.[148] The Bureau tentatively found that a revenue adjustment is reasonable in this case because it recognizes that price cap indices are adjusted to reflect the average basket price and a component of that price reflects equal access amortization.[149] The Bureau tentatively concluded that this revenue adjustment also recognizes that as demand has grown over time, the revenue recovered through this equal access amortization component of price has grown correspondingly.[150] Therefore, in order to remove fully the revenues being collected today associated with the amortized equal access costs, the Bureau tentatively

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[146] *1997 Suspension Order* at ¶ 36.

[147] Base period revenue is revenue earned in the prior calendar year.

[148] *1997 Designation Order* at ¶ 41.

[149] *1997 Designation Order* at ¶ 41.

[150] *1997 Designation Order* at ¶ 41.

concluded that the LECs must account for this demand growth.[151]

107. The Bureau sought comment on the "R" adjustment used by Aliant and proposed by AT&T, particularly their use of growth rates in LECs' local switching revenue to calculate the exogenous cost adjustment.[152] The Bureau also sought comment on whether removal of equal access costs is similar to reversal of sharing obligations.[153] In addition, parties were asked to address whether the Commission should prescribe the particular methodology for removing equal access non-capitalized expenses or whether the Commission should allow LECs to use any reasonable method that completely removes the amortized equal access expenses from their rates.[154]

108. Finally, the Bureau directed U S WEST, SWBT, Bell Atlantic, NYNEX, GTE, Ameritech, BellSouth, Frontier, Aliant, Nevada Bell, Pacific Bell, Rochester, and SNET to submit data on the local switching revenue of their traffic sensitive basket as reflected in their initial price cap filings.[155] The Bureau concluded that these data would allow the Commission to calculate the revenue change for each of these companies from the dates they made their initial price cap filings through June 30, 1997.[156]

2. Discussion

109. We determine first that removal of equal access amortization from LEC rates will be accomplished by an exogenous adjustment to each LECs' PCI because an exogenous adjustment is the mechanism established in the rules for adjusting the PCI for changes other

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[151] *1997 Designation Order* at ¶ 41.

[152] *1997 Designation Order* at ¶ 42.

[153] *1997 Designation Order* at ¶ 42. Sharing refers to the requirement that LECs earning greater than specified levels share a portion of those earnings with ratepayers in the next tariff year through reduced rates. Sharing was eliminated by the Commission in the *Price Cap Performance Review for Local Exchange Carriers; Access Charge Reform*, CC Docket Nos. 94-1, 96-262, FCC 97-159 (adopted May 7, 1997; released May 21, 1997) (*X Factor Order*). When LECs have incurred sharing obligations for a tariff year under our prior price cap rules, they first lowered the PCI to implement sharing at the beginning of the tariff year and then raised the PCI at the beginning of the next tariff year to reverse the effect of the sharing obligation. This reversal is accompanied by an exogenous PCI increase.

[154] *1997 Designation Order* at ¶ 42.

[155] *1997 Designation Order* at ¶ 43.

[156] *1997 Designation Order* at ¶ 43.

than inflation and the X-factor.[157] As explained in further detail below, we conclude that this exogenous adjustment should also take into account the growth in revenues that has occurred since 1991.

110. Generally, under price cap regulation, a cap is applied to each unit of traffic so that as demand grows the LECs' revenue also grows by the amount of the capped price multiplied by each additional unit of traffic. Since demand has grown, the increase in the PCI incorporated into price caps in 1991 to permit LECs to recover the amortization expense for equal access now permits the LECs to recover a far greater increase in annual revenue than the annual amortization amount specified in 1988. This is because the portion of the price cap that permitted recovery of the appropriate amount of the equal access amortization in 1991 has been applied to each unit of traffic, and has permitted an increase in revenues as traffic has increased. Therefore, in order to eliminate fully the impact of the equal access amortization, we must reduce the price cap to a level that will remove from current revenues all revenues attributable to the initial increase in the PCI to reflect the equal access amortization expense.[158] In that way, the current price cap will be set at the same level it would have been had the amortization been completed before the initiation of price cap regulation.

111. The general mechanism for removing this level of revenues is to determine the percentage by which revenues were increased on account of the equal access amortization in 1991 and then adjust the PCI to achieve the same percentage reduction of current revenues.[159] Accordingly, we will require LECs to adjust their 1997/1998 access rates by this mechanism. This mechanism is what the Bureau has used in other instances to make adjustments to the price cap in a way that will completely eliminate the effect of prior adjustments. For

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[157] The X-factor is the required annual adjustment to price cap indices to reflect targeted changes in productivity. *See* 47 C.F.R. § 61.45(d).

[158] For example, suppose an exogenous cost increase of $10 million in a price cap basket occurred in 1991. If revenues for this basket were $100 million, the percentage change in the PCI because of this exogenous cost change would be 10%. Now, in 1997, if traffic had increased by 500% then basket revenues would be $500 million and the revenues attributable to the initial exogenous increase would be $50 million. We note that the per unit price of some services in this basket could fall. Thus, to remove fully the effects of the exogenous cost increase, we should remove 10 percent of $500 million, which is $50 million, not the original cost increase of $10 million.

[159] If the effect of the equal access amortization adjustment was, for example, to increase by 1% the initial level of annual revenues allowed under price caps, then to remove the adjustment now so that future price cap permitted annual revenues are unaffected by the amortization adjustment, permitted annual revenues have to be reduced by the same 1%. Similarly, the average price (PCI) LECs can charge under price caps should be reduced by the same 1%. This is equivalent because revenue is simply price times quantity. Of course, the dollar amount of the annual revenue reduction is greater than the initial annual revenue adjustment, since the revenue from the adjustment grows with demand over time.

instance, the Bureau has used this mechanism to impose, and subsequently remove, the sharing obligations of LECs subject to sharing under our price cap rules. This mechanism permits LECs to increase their PCIs after the completion of sharing to the levels at which they would have been absent sharing.[160] In the same way, a PCI reduction now that takes into account revenue increase will eliminate completely the impact of the inclusion of equal access amortization expenses in the price cap.

112. We are not persuaded that the LECs' proposals in this tariff filing would have the effect of removing the annual revenue effect of equal access amortization costs in a manner that results in just and reasonable rates. LECs, with the exception of Aliant, would remove the effect of equal access amortization by reducing their PCIs by less than the original dollar amount of the initial amortization adjustment. They obtain this result by multiplying the original dollar amount by their current PCI (which reflects all of the adjustments to average prices for inflation and the X-factor since the beginning of price caps). The current PCI is less than the 1991 PCI, and thus, reduces the dollar amount to be taken out of price caps. They would then reduce their PCIs by the ratio of this amount divided by current revenues.[161] We reject this approach. Not only does it fail to account for the growth in demand during this period and, therefore, not remove fully equal access costs, but it actually reduces the PCI by an amount lower than the original amortization. The Figure in Appendix D illustrates the revenue impact of the LECs' proposed mechanism for removing equal access costs and the R adjustment that we require here.

113. We also reject U S WEST's argument that the Commission should permit the adjustment to remove equal access amortization from LEC rates to be reduced by the amount of the PCI reduction since the initiation of price caps, as the LECs proposed in their tariff filings, because of the delay by the Commission in addressing this issue. The impact of the delay has been that U S WEST and other price cap LECs have had the ability to charge

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[160] For example, assume that a LEC has incurred a sharing obligation of $5 and that its annual revenues are $1000. At the beginning of the price cap tariff year, the Bureau requires the LEC to make an exogenous downward adjustment to its average price (PCI) of 5/1000, or 0.5%. The effect of this is to reduce the LEC's annual regulated revenues by $5 (0.5% of $1000.) A year later, at the beginning of the next price cap tariff year, the Bureau orders the LEC to make an exogenous upward adjustment to its PCI of 0.5%. The downward and upward adjustments to the PCI and revenues are the same 0.5%, but if the LEC's annual regulated revenues have grown over the last year to $1100, the dollar amount of the allowed increase is greater than the required decrease ($5.50 vs. $5).

[161] For instance, suppose original equal access costs totalled $10 million; the current PCI for the traffic sensitive basket is 80; and the PCI for the traffic sensitive basket in 1991 was 100. The LECs propose to adjust the $10 million of equal access costs by the change in the PCI from 1991 to 1997 (100 to 80). Their adjustment reduces the equal access costs from $10 million to $8 million. In order to remove these costs from price caps, LECs propose to divide the adjusted amount of $8 million by 1997 revenues in the traffic sensitive basket, as per the rules describing removals of exogenous costs from the price cap index.

higher rates during this delay in excess of the amount of equal access costs entitled to amortization. This excess recovery does not justify reducing the amount of the adjustment to terminate this amortization. To the contrary, LECs have benefitted by this delay and will not be harmed by now setting rates at the correct level. We also reject the LECs' argument that the adjustment should be modified for those LECs that priced below cap. The existence of such headroom does not suggest that demand failed to grow between the inception of price caps and June 30, 1997, such that an "R" value adjustment is not needed. The fact that some LECs may have been priced below cap as a voluntary matter does not justify modifying the exogenous adjustment at issue here.[162]

114. In addition, we reject BellSouth's argument that the equal access adjustment should not reflect growth because the costs subject to the amortization do not change with demand. As explained above, the portion of the LECs' price cap index attributable to the equal access amortization has permitted the LECs to recover increasing amounts as demand has increased. We also reject Bell Atlantic and Ameritech's proposal that the only reasonable starting point for an "R" value adjustment would be the 1993 tariff year, or the date on which LECs set their equal access rates to zero. This proposal does not capture revenue growth in 1991 and 1992, and thus, a portion of the increase in LEC price cap revenues attributable to the initial incorporation of equal access amortization expenses into the PCIs would remain in current rates.

115. In order to make the "R" adjustment, we direct LECs to identify the dollar amount of equal access exogenous costs as filed in their tariffs at the inception of price cap regulation. LECs must then multiply this amount by the ratio of the sum of 1997 traffic sensitive and trunking basket revenues to the sum of 1991 traffic sensitive and transport basket revenues.[163] The resulting dollar amount represents the exogenous cost change for the equal access amortization of non-capitalized costs. This approach accounts for the restructure of the 1991 traffic sensitive and transport baskets in 1994 into the traffic sensitive and trunking baskets.[164] Thus, the services included in the 1991 traffic sensitive and transport baskets correspond to the services in the 1997 traffic sensitive and trunking baskets. The equal access rate element is included in these composite baskets, and therefore, the percentage that it increased the revenues of the composite basket (*i.e.*, traffic sensitive and transport

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[162] The existence of "headroom" (*i.e.*, a difference between the cap and the prices charged) would indeed be relevant if we were making the LECs refund the monies they obtained in earlier years as a result of the error we are now correcting. It is to their benefit, not detriment, that we are giving the correction only prospective application.

[163] Delta Z= 1991 Equal Access Exogenous cost amount × $\frac{\text{1997 traffic sensitive + trunking basket revenues}}{\text{1991 traffic sensitive + transport basket revenues}}$

[164] *See In the Matter of Transport Rate Structure and Pricing,* CC Docket No. 91-213, 7 FCC Rcd 7006 (1994) (*Transport Restructuring Order*).